FIG. 1

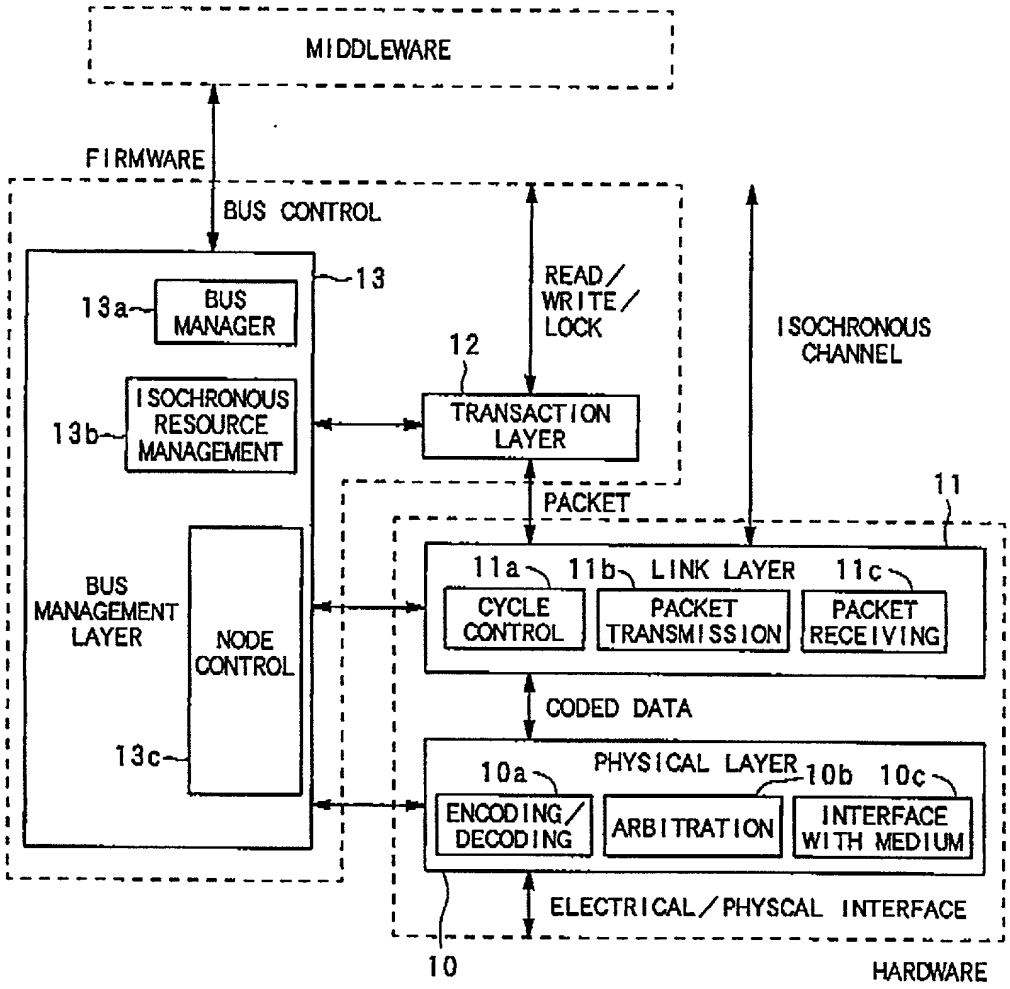
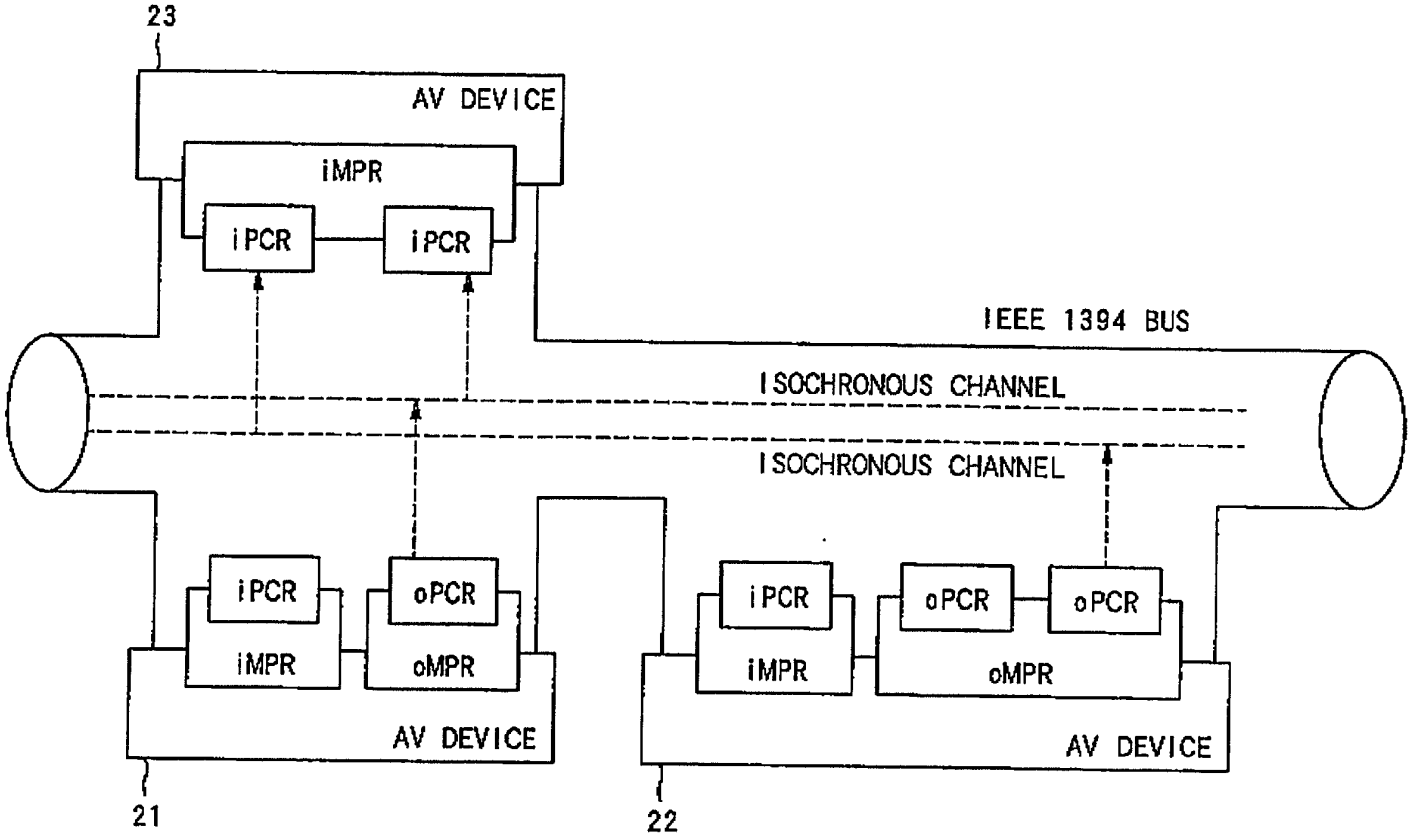

MIDDLEWARE
FIRMWARE
BUS CONTROL
13
13a
BUS MANAGER
13b
ISOCHRONOUS RESOURCE MANAGEMENT
BUS MANAGEMENT LAYER
NODE CONTROL
13c
READ/ WRITE/ LOCK
12
TRANSACTION LAYER
ISOCHRONOUS CHANNEL
PACKET
11
11a
11b
LINK LAYER
11c
CYCLE CONTROL
PACKET TRANSMISSION
PACKET RECEIVING
CODED DATA
PHYSICAL LAYER
10a
10b
10c
ENCODING/ DECODING
ARBITRATION
INTERFACE WITH MEDIUM
ELECTRICAL/PHYSCAL INTERFACE
10
HARDWARE

FIG. 2


23
AV DEVICE
iMPR
iPCR
iPCR
IEEE 1394 BUS
ISOCHRONOUS CHANNEL
ISOCHRONOUS CHANNEL
iPCR
oPCR
iMPR
oMPR
AV DEVICE
21
iPCR
oPCR
oPCR
iMPR
oMPR
AV DEVICE
22

EDITED SCREEN

FIG. 3

ON-LINE FLAG	BROADCAST CONNECTION COUNTER	POINT-TO-POINT CONNECTION COUNTER	RESERVED	CHANNEL NUMBER	DATA TRANSFER SPEED	OVERHEAD ID	PAYLOAD
1bit	1bit	6bit	2bit	6bit	2bit	4bit	10bit

FIG. 4

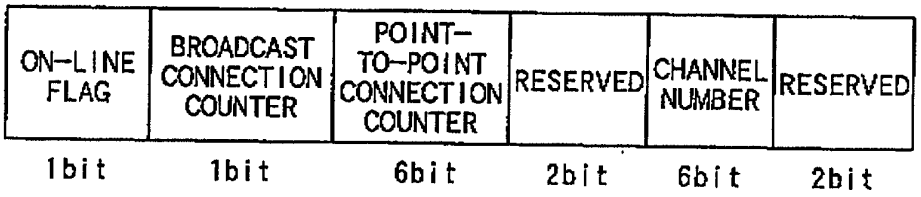

ON-LINE FLAG
BROADCAST CONNECTION COUNTER
POINT-TO-POINT CONNECTION COUNTER
RESERVED
CHANNEL NUMBER
RESERVED
1bit
1bit
6bit
2bit
6bit
2bit

FIG. 5A

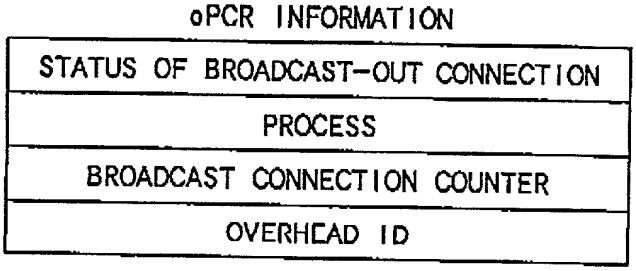


FIG. 5B

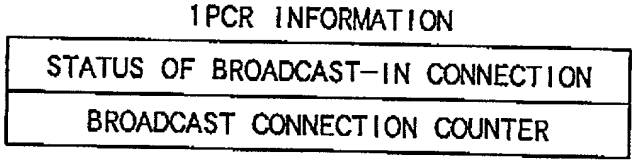


FIG. 5C

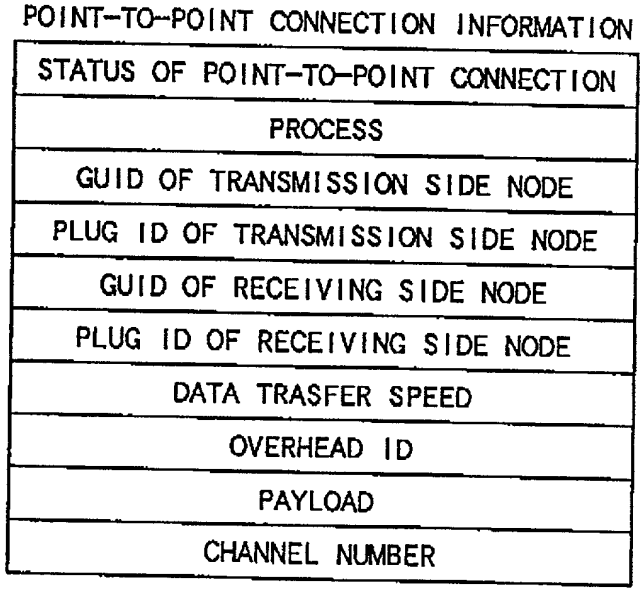


FIG. 6

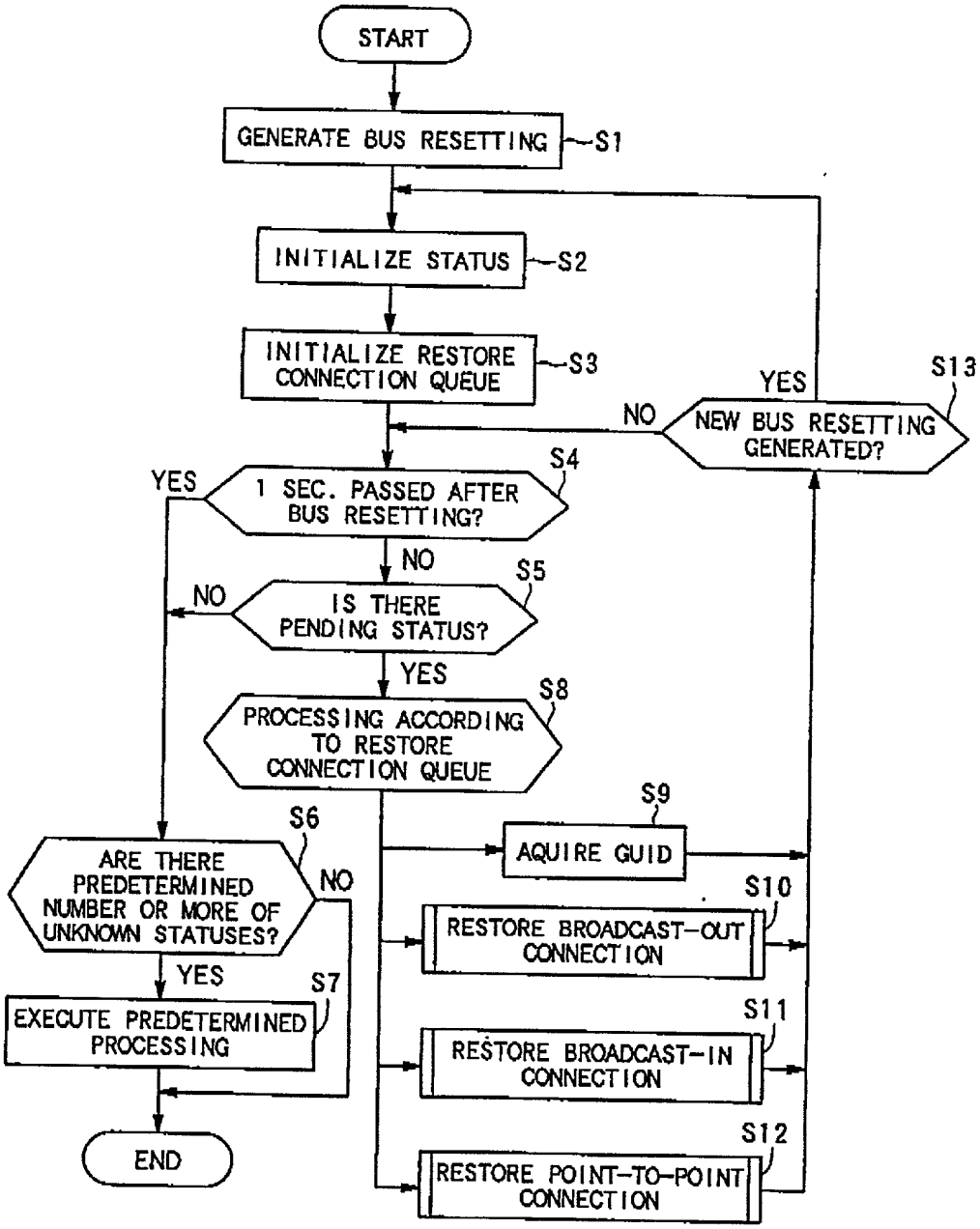

START
GENERATE BUS RESETTING
S1
INITIALIZE STATUS
S2
INITIALIZE RESTORE CONNECTION QUEUE
S3
NEW BUS RESETTING GENERATED?
YES
NO
S13
1 SEC. PASSED AFTER BUS RESETTING?
S4
YES
NO
IS THERE PENDING STATUS?
S5
NO
YES
PROCESSING ACCORDING TO RESTORE CONNECTION QUEUE
S8
ARE THERE PREDETERMINED NUMBER OR MORE OF UNKNOWN STATUSES?
S6
NO
YES
EXECUTE PREDETERMINED PROCESSING
S7
END
AQUIRE GUID
S9
RESTORE BROADCAST-OUT CONNECTION
S10
RESTORE BROADCAST-IN CONNECTION
S11
RESTORE POINT-TO-POINT CONNECTION
S12

FIG. 7

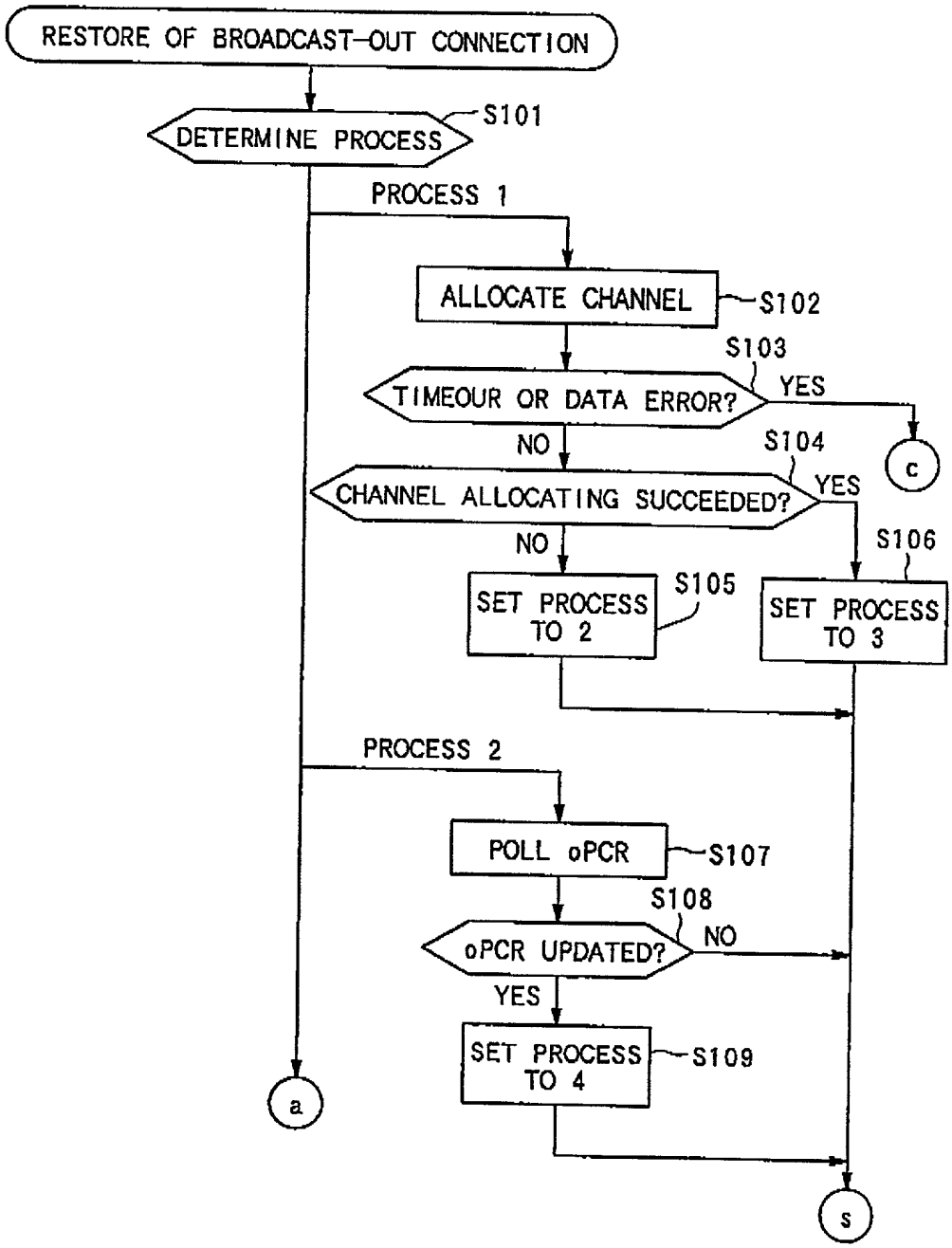

RESTORE OF BROADCAST-OUT CONNECTION
DETERMINE PROCESS
S101
PROCESS 1
ALLOCATE CHANNEL
S102
S103
TIMEOUR OR DATA ERROR?
YES
NO
S104
CHANNEL ALLOCATING SUCCEEDED?
YES
NO
S106
SET PROCESS TO 2
S105
SET PROCESS TO 3
PROCESS 2
POLL oPCR
S107
S108
oPCR UPDATED?
NO
YES
SET PROCESS TO 4
S109
a
c
s

FIG. 8

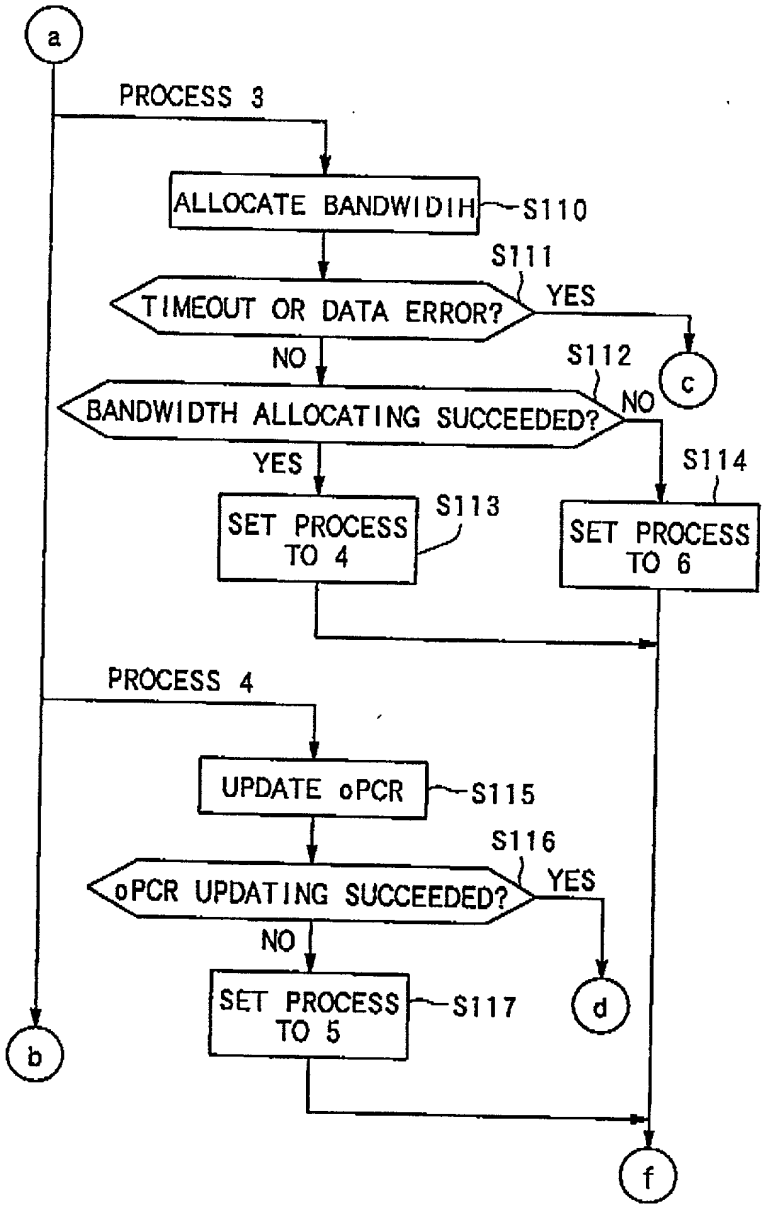

a
PROCESS 3
ALLOCATE BANDWIDTH
S110
S111
TIMEOUT OR DATA ERROR?
YES
NO
S112
c
BANDWIDTH ALLOCATING SUCCEEDED?
NO
YES
S114
S113
SET PROCESS TO 4
SET PROCESS TO 6
PROCESS 4
UPDATE oPCR
S115
S116
oPCR UPDATING SUCCEEDED?
YES
NO
SET PROCESS TO 5
S117
d
b
f

FIG. 9

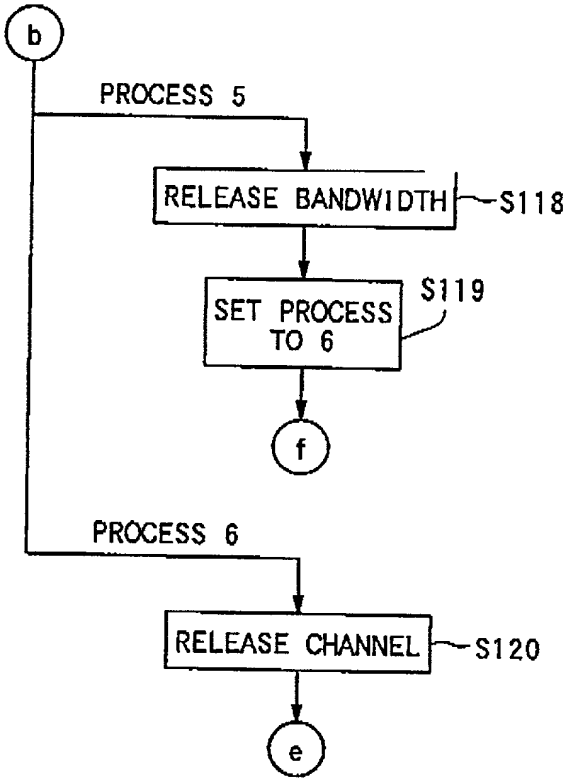

b
PROCESS 5
RELEASE BANDWIDTH
S118
SET PROCESS TO 6
S119
f
PROCESS 6
RELEASE CHANNEL
S120
e

FIG.10

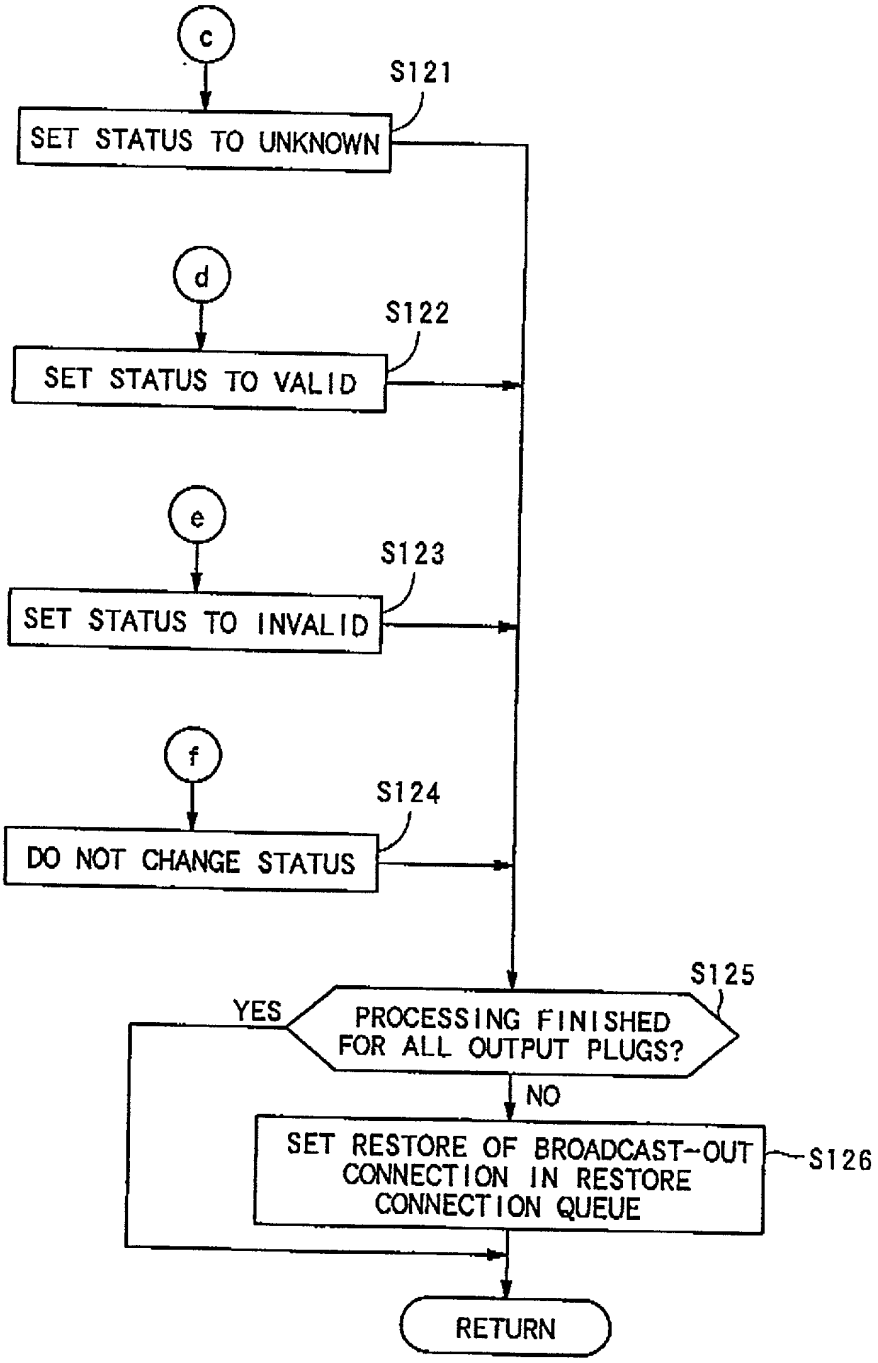

c
S121
SET STATUS TO UNKNOWN
d
S122
SET STATUS TO VALID
e
S123
SET STATUS TO INVALID
f
S124
DO NOT CHANGE STATUS
S125
YES
PROCESSING FINISHED FOR ALL OUTPUT PLUGS?
NO
SET RESTORE OF BROADCAST-OUT CONNECTION IN RESTORE CONNECTION QUEUE
S126
RETURN

FIG.11

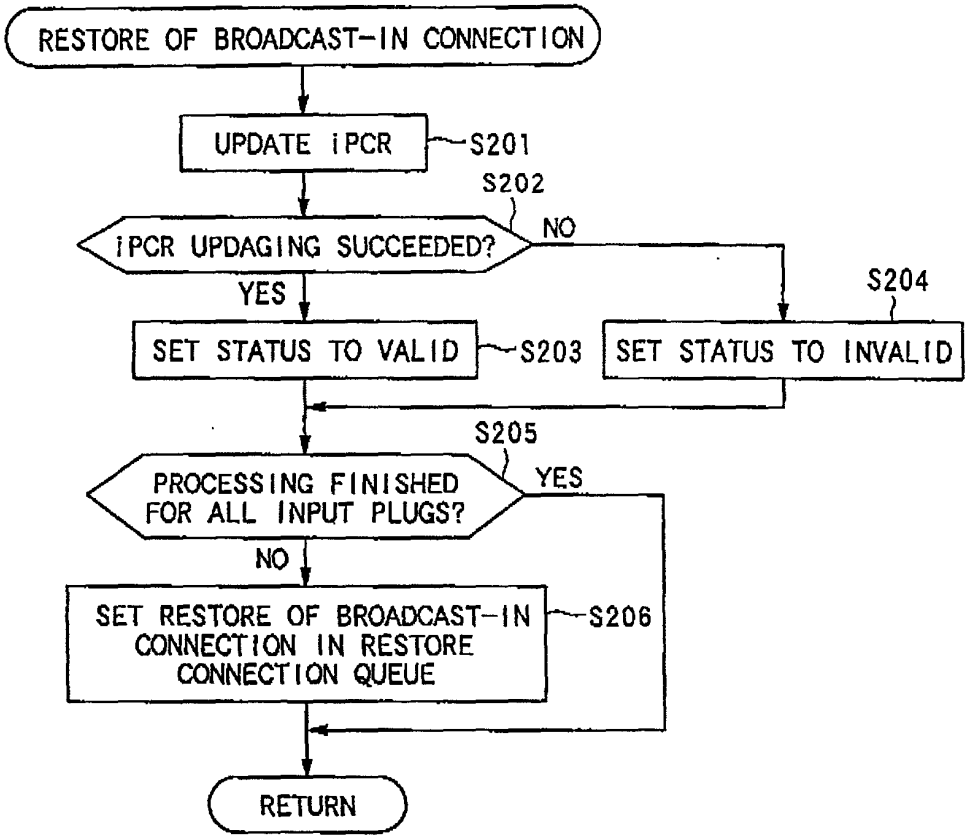

RESTORE OF BROADCAST-IN CONNECTION
UPDATE iPCR
S201
S202
iPCR UPDAGING SUCCEEDED?
NO
YES
S204
SET STATUS TO VALID
S203
SET STATUS TO INVALID
S205
PROCESSING FINISHED FOR ALL INPUT PLUGS?
YES
NO
SET RESTORE OF BROADCAST-IN CONNECTION IN RESTORE CONNECTION QUEUE
S206
RETURN

FIG.12

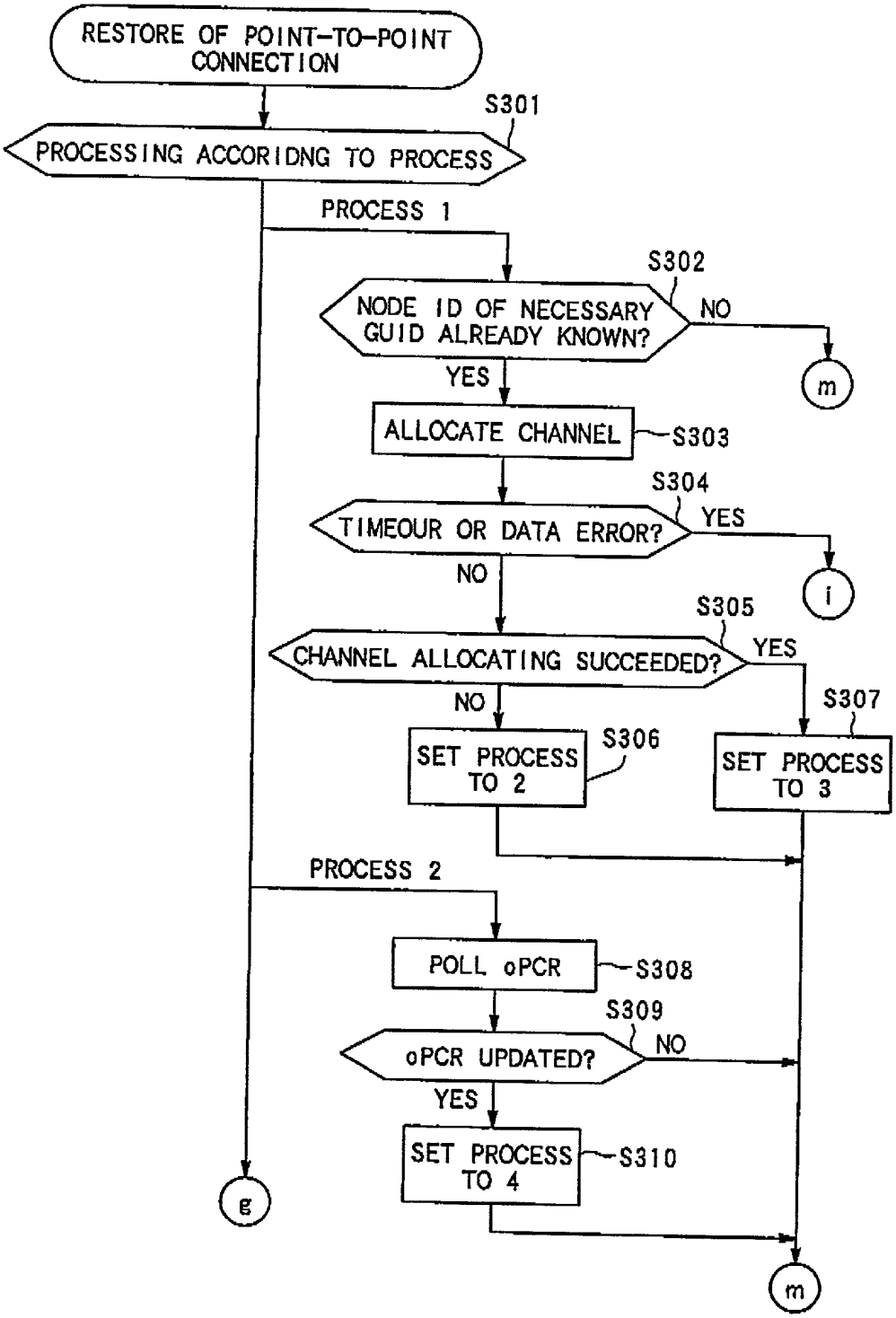

RESTORE OF POINT-TO-POINT CONNECTION
S301
PROCESSING ACCORIDNG TO PROCESS
PROCESS 1
S302
NODE ID OF NECESSARY GUID ALREADY KNOWN?
NO
m
YES
ALLOCATE CHANNEL
S303
S304
TIMEOUR OR DATA ERROR?
YES
i
NO
S305
CHANNEL ALLOCATING SUCCEEDED?
YES
NO
S307
S306
SET PROCESS TO 2
SET PROCESS TO 3
PROCESS 2
POLL oPCR
S308
S309
oPCR UPDATED?
NO
YES
SET PROCESS TO 4
S310
g
m

FIG.13

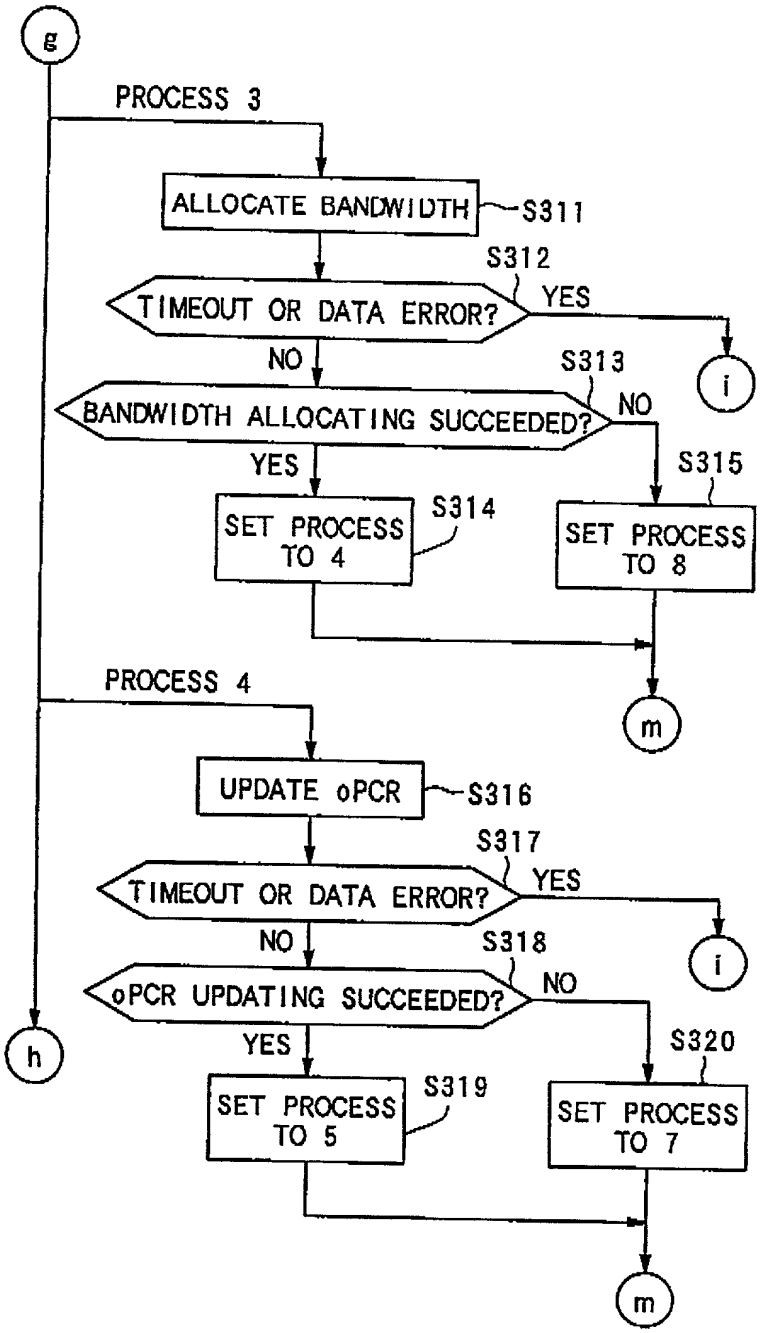

g
PROCESS 3
ALLOCATE BANDWIDTH
S311
S312
TIMEOUT OR DATA ERROR?
YES
i
NO
S313
BANDWIDTH ALLOCATING SUCCEEDED?
NO
YES
S315
SET PROCESS TO 4
S314
SET PROCESS TO 8
m
PROCESS 4
UPDATE oPCR
S316
S317
TIMEOUT OR DATA ERROR?
YES
i
NO
S318
oPCR UPDATING SUCCEEDED?
NO
h
YES
S320
SET PROCESS TO 5
S319
SET PROCESS TO 7
m

FIG.14

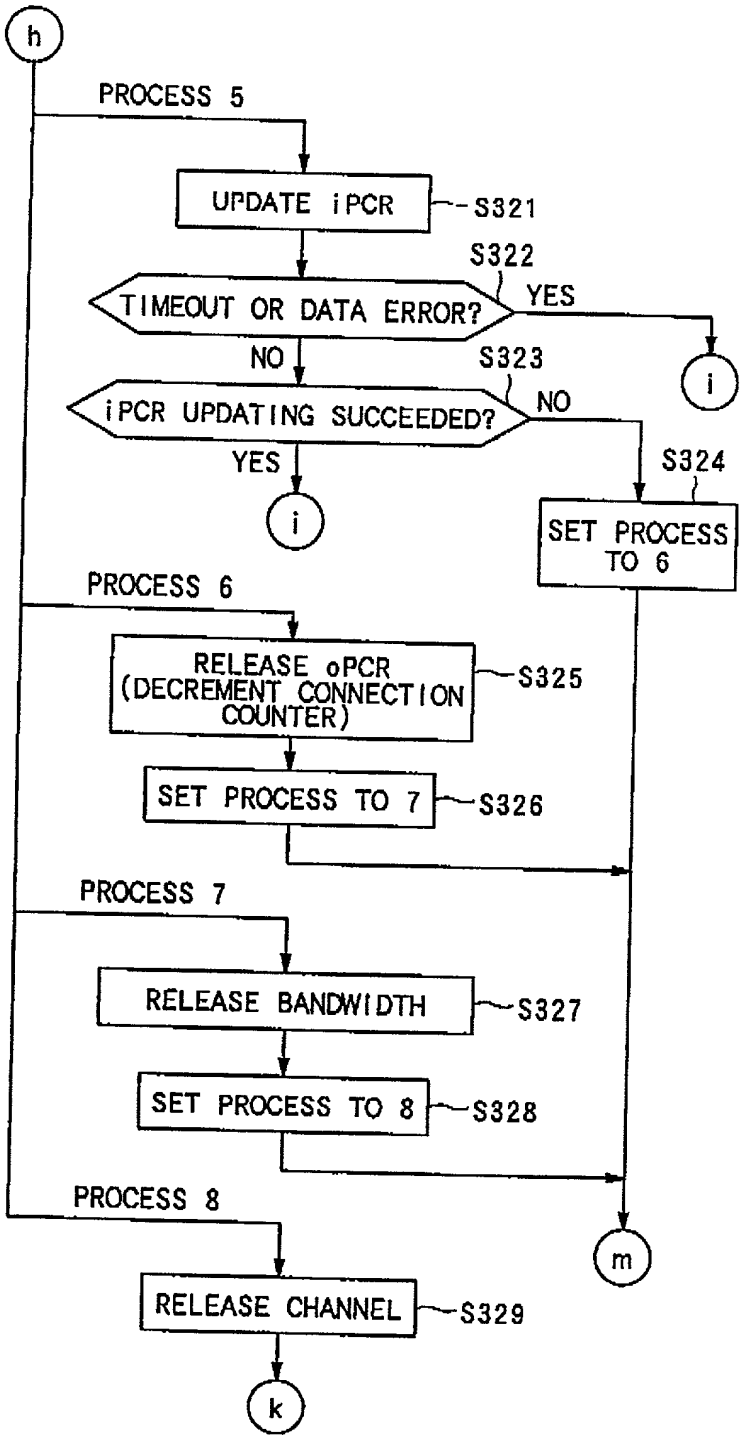
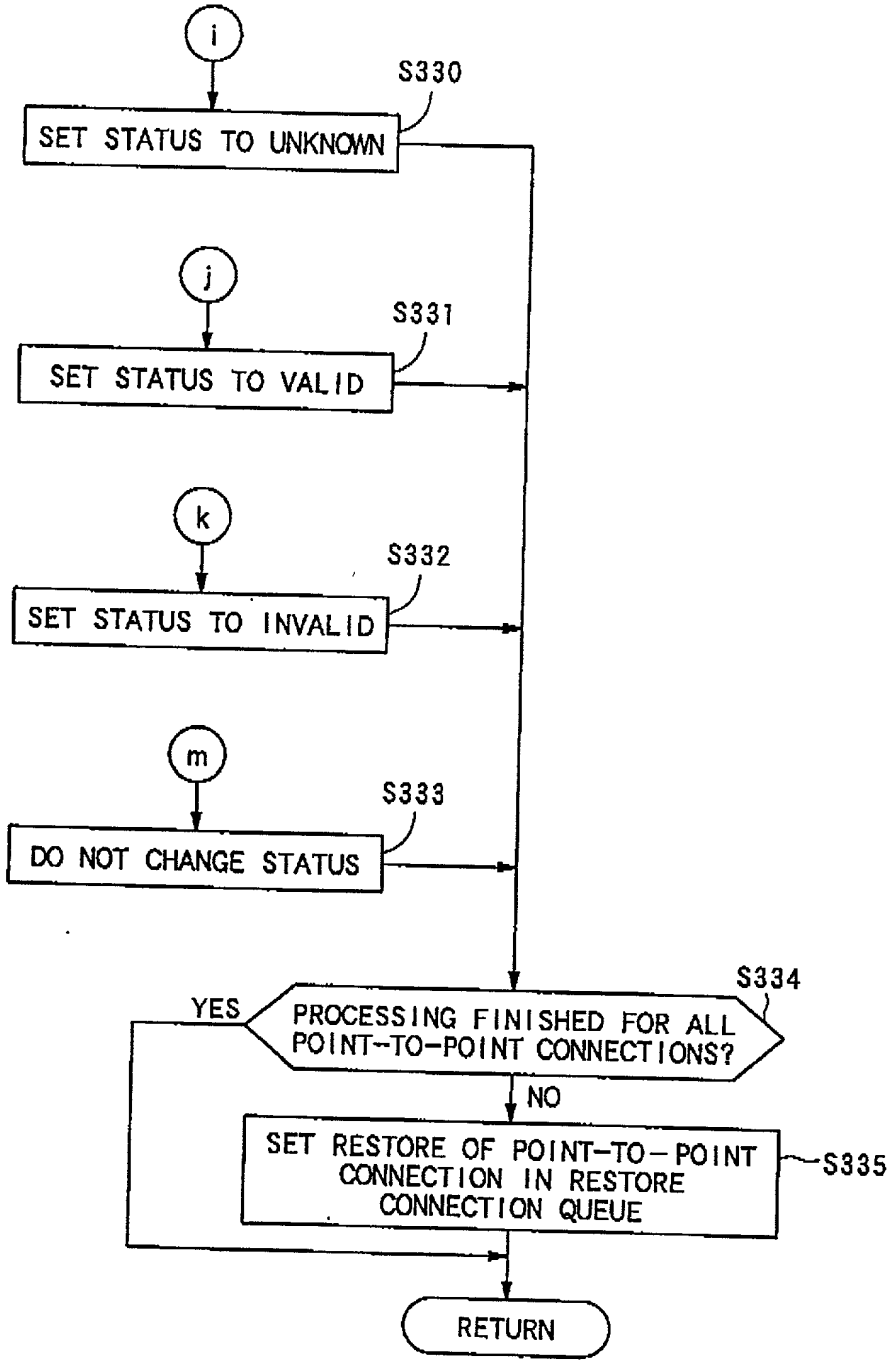

h
PROCESS 5
UPDATE iPCR
S321
S322
TIMEOUT OR DATA ERROR?
YES
NO
S323
iPCR UPDATING SUCCEEDED?
NO
YES
i
i
S324
SET PROCESS TO 6
PROCESS 6
RELEASE oPCR (DECREMENT CONNECTION COUNTER)
S325
SET PROCESS TO 7
S326
PROCESS 7
RELEASE BANDWIDTH
S327
SET PROCESS TO 8
S328
PROCESS 8
m
RELEASE CHANNEL
S329
k

FIG.15


i
S330
SET STATUS TO UNKNOWN
j
S331
SET STATUS TO VALID
k
S332
SET STATUS TO INVALID
m
S333
DO NOT CHANGE STATUS
S334
YES
PROCESSING FINISHED FOR ALL POINT-TO-POINT CONNECTIONS?
NO
SET RESTORE OF POINT-TO-POINT CONNECTION IN RESTORE CONNECTION QUEUE
S335
RETURN